

**What is claimed is:**

1. A composition for variably releasing fragrances comprising in combination:

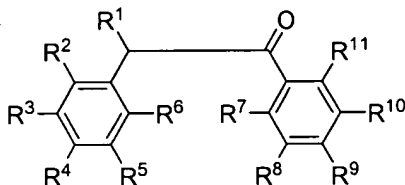
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(a) a first organic agent that undergoes an intramolecular photochemical rearrangement that is induced by sunlight radiation to release a fragrance or form a second agent that is a fragrance; and

10 (b) a carrier for topical administration to skin or hair or administration to articles of clothing and other textiles via washing or spraying methods.

2. A photoresponsive fragrance composition comprising:

15 (a) a compound having the formula



wherein

20 R<sub>1</sub> is substituted ester (--OC(O)R<sub>12</sub>), substituted phosphate (--OP(O)(R<sub>19</sub>)(OR<sub>20</sub>), substituted thiol (--S-R<sub>12</sub>), substituted amine (--NH-R<sub>12</sub>) or an other substituted chemical group covalently linked to a fragrance or fragrance molecule;

R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, and R<sub>6</sub> are independently hydrogen, hydroxy, alkyl, aryl, alkoxy or substituted alkoxy;

25 R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, and R<sub>11</sub> are independently hydrogen, alkyl, aryl, alkoxy or substituted alkoxy;

R<sub>12</sub>, is a fragrance or molecule that imparts a fragrance;

R<sub>19</sub> is a hydrogen and R<sub>20</sub> is a fragrance or molecule that imparts a fragrance or R<sub>19</sub> is a fragrance or molecule that imparts a fragrance and R<sub>20</sub> is a hydrogen

wherein at least one of R<sub>2</sub> or R<sub>6</sub> is hydrogen;

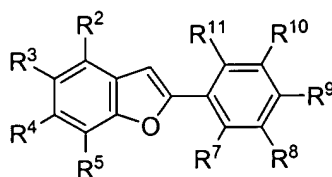
5 wherein at least one of R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, or R<sub>6</sub> is hydroxy or substituted alkoxy; and

(B) a carrier for topical administration to skin or hair or direct administration to articles of clothing or other textiles.

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3. A photoresponsive fragrance composition comprising:

(A) a sunlight absorbing compound having the formula



wherein

15 R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> are independently hydrogen, hydroxy (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy or substituted (C<sub>1-20</sub>)alkoxy;

R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, and R<sub>11</sub> are independently hydrogen, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>) aryl, (C<sub>1-20</sub>)alkoxy or substituted (C<sub>1-20</sub>)alkoxy;

wherein at least one of R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, or R<sub>5</sub> is hydroxy or substituted (C<sub>1-20</sub>)alkoxy;

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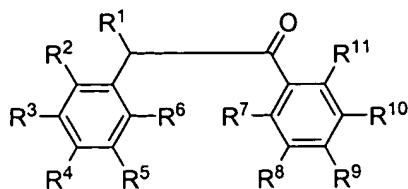
(B) a carrier for topical administration to skin or hair, or direct administration to articles of clothing or other textiles;

(C ) a fragrance or fragrance molecule.

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4. A composition useful for releasing fragrances of a desired scent comprising:

(A) a compound having the formula



wherein

R<sub>1</sub> is substituted ester (--OC(O)R<sub>12</sub>), substituted phosphate (--OP(O)(R<sub>19</sub>)(OR<sub>20</sub>), substituted thiol (--S-R<sub>12</sub>), substituted amine (--NH-R<sub>12</sub>) or an other substituted chemical group covalently linked to a fragrance or fragrance molecule

R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, and R<sub>6</sub> are independently hydrogen, hydroxy, alkyl, aryl, alkoxy, or substituted alkoxy;

R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, and R<sub>11</sub> are independently hydrogen, alkyl, aryl, alkoxy, or substituted alkoxy;

R<sub>12</sub> is a fragrance or fragrance molecule;

R<sub>19</sub> is hydrogen or a fragrance molecule; and

R<sub>20</sub> is hydrogen or a fragrance molecule wherein at least one of R<sub>2</sub> or R<sub>6</sub> is hydrogen; wherein at least one of R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> or R<sub>6</sub> is hydroxy or substituted alkoxy; and

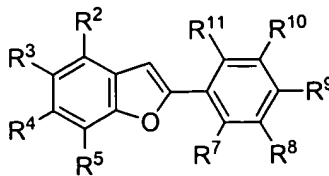
(B) a carrier for topical administration to skin or hair or direct administration to articles of clothing and other textiles.

5. The composition according to claim 4 further comprising an auxiliary fragrance agent having a different fragrance than the photoreleased fragrance.

6. The composition according to claim 4 further comprising a photo rearranged product having a desirable fragrance.

7. A composition useful for releasing a desirable fragrance comprising:

(A) an sunlight absorbing compound having the formula



wherein

R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> are independently hydrogen, hydroxy, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;

- 5 R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, and R<sub>11</sub>, are independently is hydrogen, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;

wherein at least one of R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, or R<sub>5</sub> is hydroxy or substituted (C<sub>1-20</sub>)alkoxy and

(B) a carrier for topical administration or direct administration to articles of

- 10 clothing and other textiles or via routine washing.

8. The composition according to claim 7 wherein

R<sub>2</sub> is hydrogen;

R<sub>3</sub> is hydrogen, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;

- 15 R<sub>4</sub> is hydrogen;

R<sub>5</sub> is (C<sub>1-20</sub>)alkoxy or substituted (C<sub>1-20</sub>)alkoxy;

R<sub>7</sub> is hydrogen;

R<sub>8</sub> is hydrogen;

R<sub>9</sub> is hydrogen;

- 20 R<sub>10</sub> is hydrogen; and

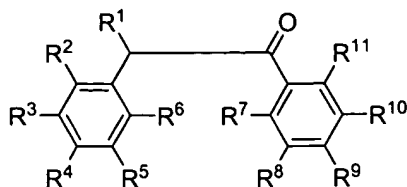
R<sub>11</sub> is hydrogen.

9. The composition according to claim 7 further comprising an auxiliary fragrance agent having a different fragrance than compound (A).

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10. A photoresponsive fragrance composition comprising:

(A) a compound having the formula



wherein

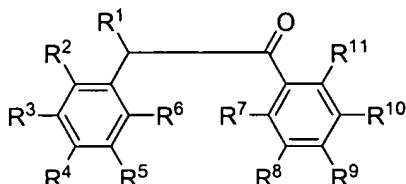
- 5  $R_1$  is substituted ester ( $--OC(O)R_{12}$ ), substituted phosphate ( $--OP(O)(R_{19})(OR_{20})$ ), substituted thiol ( $--S-R_{12}$ ), substituted amine ( $--NH-R_{12}$ ) or an other substituted chemical group covalently linked to a fragrance or fragrance molecule.;
- $R_2$  is hydrogen, hydroxy,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- 10  $R_3$  is hydrogen, hydroxy,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- $R_4$  is hydrogen, hydroxy,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- $R_5$  is hydrogen, hydroxy,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- 15  $R_6$  is hydrogen, hydroxy,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- $R_7$  is hydrogen,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- $R_8$  is hydrogen,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- 20  $R_9$  is hydrogen,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- $R_{10}$  is hydrogen,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- $R_{11}$  is hydrogen,  $(C_{1-20})$ alkyl,  $(C_{5-12})$ aryl,  $(C_{1-20})$ alkoxy or substituted  $(C_{1-20})$ alkoxy;
- $R_{12}$ , is a fragrance or molecule that imparts a fragrance;
- $R_{19}$  is hydrogen or a fragrance molecule;
- 25  $R_{20}$  is hydrogen or a fragrance molecule;
- wherein at least one of  $R_2$  or  $R_6$  is hydrogen;
- wherein at least one of  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ , or  $R_6$  is hydroxy or substituted  $(C_{1-20})$ alkoxy;
- and

(B) a carrier for topical administration or direct administration to articles of clothing and other textiles or via routine washing.

11. A composition useful releasing a desired fragrance comprising:

5

(A) a compound having the formula



wherein

- R<sub>1</sub> is substituted ester (--OC(O)R<sub>12</sub>), substituted phosphate (--OP(O)(R<sub>19</sub>)(OR<sub>20</sub>),  
10 substituted thiol (--S-R<sub>12</sub>), substituted amine (--NH-R<sub>12</sub>) or an other substituted  
chemical group covalently linked to a fragrance or fragrance molecule.;
- R<sub>2</sub> is hydrogen, hydroxy, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- R<sub>3</sub> is hydrogen, hydroxy, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;  
15
- R<sub>4</sub> is hydrogen, hydroxy, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- R<sub>5</sub> is hydrogen, hydroxy, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- 20 R<sub>6</sub> is hydrogen, hydroxy, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- R<sub>7</sub> is hydrogen, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- R<sub>8</sub> is hydrogen, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- R<sub>9</sub> is hydrogen, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- 25 R<sub>10</sub> is hydrogen, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- R<sub>11</sub> is hydrogen, (C<sub>1-20</sub>)alkyl, (C<sub>5-12</sub>)aryl, (C<sub>1-20</sub>)alkoxy, or substituted (C<sub>1-20</sub>)alkoxy;
- R<sub>12</sub> is a fragrance or a molecule that imparts a fragrance;

R<sub>19</sub> is hydrogen or a fragrance molecule

R<sub>20</sub> is hydrogen or a fragrance molecule

wherein at least one of R<sub>2</sub> or R<sub>6</sub> is hydrogen;

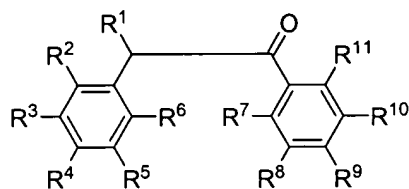
wherein at least one of R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> or R<sub>6</sub> is hydroxy or substituted (C<sub>1-20</sub>)alkoxy;

5 and

(B) a carrier for topical administration or direct administration to articles of clothing and other textiles or via routine washing.

10 12. A photoresponsive fragrance composition comprising:

(A) a compound having the formula



15 wherein

R<sub>1</sub> is a fragrance molecule; R<sub>2</sub> is hydrogen, hydroxy, alkyl, aryl, alkoxy or substituted alkoxy;

R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, and R<sub>6</sub> are independently hydrogen, hydroxy, alkyl, aryl, alkoxy or substituted alkoxy;

20 R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, and R<sub>11</sub> are independently hydrogen, alkyl, aryl, alkoxy or substituted alkoxy;

wherein at least one of R<sub>2</sub> or R<sub>6</sub> is hydrogen;

wherein at least one of R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, or R<sub>6</sub> is hydroxy or substituted alkoxy; and

25 (B) a carrier for topical administration or direct administration to article of clothing and other textiles or via routine washing.

13. A method of controlling the release of a fragrance by incorporating the compositions of any one of claims 1 to 12 into clothing or textiles by spraying

the composition onto the clothing or textiles or washing the clothing or textiles in a solution of the composition.

14. A method according to claim 13, wherein the composition is  
5 sprayed onto the clothing or textiles.

15. A method according to claim 13, wherein the composition is incorporated into the clothing or textiles via washing.

16. A composition according to any one of claims 1, 2, 3, 4, 5, or 6  
10 wherein the composition is formulated for spraying onto the skin.

17. A composition according to any one of claims 1, 2, 3, 4, 5, or 6  
15 wherein the composition is formulated for rubbing onto the skin.

18. A method of controlling the release of a fragrance by applying the compositions of any one of claims 1 to 12 onto the skin or hair of a mammal.

19. A method according to claim 16, wherein the mammal is a human.  
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20. A method according to claim 16, wherein the mammal is a companion animal.

21. A composition according to any one of claims 1, 2, 4, 5, 6, 10, 11,  
25 12, 16, or 17, wherein the compound is of the formula:

